

EX PARTE OR LATE FILED  
LAW OFFICES  
LEVENTHAL, SENTER & LERMAN  
SUITE 600

2000 K STREET, N.W.  
WASHINGTON, D.C. 20006-1809

NORMAN P. LEVENTHAL  
MEREDITH S. SENTER, JR.  
STEVEN ALMAN LERMAN  
RAUL R. RODRIGUEZ  
DENNIS P. CORBETT  
BRIAN M. MADDEN  
BARBARA K. GARDNER  
STEPHEN D. BARUCH  
SALLY A. BUCKMAN  
NANCY L. WOLF  
DAVID S. KEIR  
DEBORAH R. COLEMAN  
J. BRECK BLALOCK  
NANCY A. ORY  
WALTER P. JACOB  
RENEE L. ROLAND\*

May 8, 1995

ORIGINAL

DOCKET FILE COPY ORIGINAL  
TELEPHONE  
(202) 429-8970  
TELECOPIER  
(202) 293-7783

SENIOR COMMUNICATIONS  
CONSULTANT  
MORTON I. HAMBURG

\*ADMITTED MD ONLY

**VIA HAND DELIVERY**

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W.  
Washington, DC 20554

RECEIVED

MAY - 8 1995

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

Re: ET Docket No. 94-124  
CC Docket No. 92-297

Dear Mr. Caton:

Pursuant to Section 1.1206 of the Commission's Rules, TRW Inc. ("TRW") hereby reports that an ex parte presentation was made by representatives of TRW on May 4, 1995 to Donald Gips, Gregory Rosston, and Amy Lesch of the Commission's Office of Plans and Policy to discuss issues addressed in TRW's comments and reply comments in ET Docket No. 94-124 and the Report of the LMDS/FSS 28 GHz Negotiated Rulemaking Committee in CC Docket No. 92-297 (and subsequent ex parte filings). The enclosed presentation materials were also discussed. Attending the meeting on behalf of TRW were Eric Wiswell (Odyssey Comm. System Manager), Peter J. Hadinger (Manager, Odyssey Washington Operations), and Norman P. Leventhal and Stephen D. Baruch of the law firm of Leventhal, Senter & Lerman.

No. of Copies rec'd  
List A B C D E

021

LEVENTHAL, SENTER & LERMAN

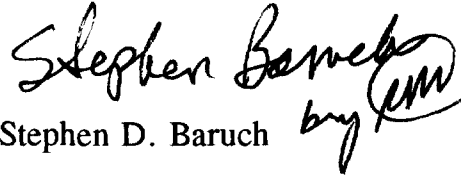
Mr. William F. Caton

May 8, 1995

Page - 2 -

The meeting was scheduled in accordance with the Commission's public notice, Notice of Requested Ex Parte Presentations in CC Docket No. 92-297, DA 95-663 (released April 5, 1995). Two originals and two copies of this letter are being submitted for inclusion in the docket files of the above-referenced proceedings.

Respectfully submitted,

  
Stephen D. Baruch

SDB:kbs

Enclosure

cc (w/encl.): Mr. Donald Gips  
Mr. Gregory Rosston  
Ms. Amy Lesch



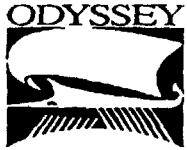
# Odyssey Feeder Links

**Eric R. Wiswell**  
**May 4, 1995**



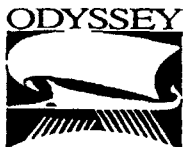
## **Odyssey Ka-band Feeder Link Chronology**

- **May 1991, TRW files Odyssey application with FCC**
  - **Identifies Ka-band (20/30 GHz) for feeder link use**
- **Summer 1994, FCC conducts Negotiated Rule Making for 28 GHz Band**
  - **Includes satellite and terrestrial interested parties**
  - **TRW/Odyssey participates in NRM**
  - **NRM fails to reach consensus on any technical conclusions regarding frequency spectrum sharing**
- **October 1994, FCC releases MSS “Report and Order” and identifies Ka-band as an MSS feeder link frequency**
  - **FCC states in “Report and Order” that if sufficient Ka-band spectrum is made available in 20/30 GHz bands, they would potentially authorize all MSS licensees feeder links in Ka-band.**



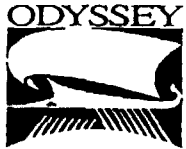
## **Odyssey Ka-band Feeder Link Chronology (Continued)**

- **January 1995, FCC issue 3 MSS licenses**
  - **All licenses issued with conditional approval to proceed at licensee's desired feeder link frequencies**
  
- **April 1995, Conference Preparatory Meeting (CPM) for the 1995 World Radio Conference (WRC95) Issues Recommendations for Feeder Links Above 17.7 GHz**
  - **Three options are identified for Non-GSO MSS feeder links**
    - **Two of these options require use 27.5-29.5 GHz band for Non-GSO MSS feeder link usage**
  
- **Odyssey supports identification of 500 MHz in 27.5-29.5 GHz and 17.7-19.7 GHz bands for primary use by NGSO MSS feeder links**



## **Odyssey Feeder Link Design**

- **The Odyssey system design is predicated on use of Ka-band feeder links**
  - Entire ground network design hinges on technical and economic viability of Ka-band feeder link
  - Space segment design also heavily dependant on Ka-band frequency usage
- **Odyssey is proceeding with its system concept as are other MSS systems**
  - Iridium system also predicated on Ka-band feeder link design
  - Globalstar uses C-band feeder links
- **Significant redesign of Odyssey (or other systems) would be disastrous for US Mobile Satellite Service industry**



## **Prospects for Sharing with LMDS**

- **Preliminary analysis indicates that Odyssey can not share frequency spectrum with LMDS in the 28 GHz region**
  - **Odyssey feeder links must be located near PSTN long line switching centers**
    - **Generally in or near urban centers**
  - **Odyssey feeder links operate down to 10° elevation angle**
  - **Due to nongeostationary orbit and satellite coverage characteristics, Odyssey feeder links required to be capable of 360° azimuth operation**
  - **Odyssey feeder links require 300 MHz of contiguous bandwidth**
  - **Odyssey feeder link transmit EIRP (86 dBW) much higher than previously analyzed by Bellcore**
  - **Required geographic separation for interference mitigation untenable to either Odyssey or LMDS**



## **Bellcore Study Fatally Flawed**

- **Biased in favor of LMDS applications**
  - **No system redesign required for LMDS--only for satellite systems**
- **Does not consider cost of system redesign "solution"**
- **Does not study higher power MSS feeder links**
  - **Only studied relatively low power Ka-band satellite network applications**
- **Feeder links require contiguous bandwidth for viable operation**
  - **300 MHz feeder link bandwidth required for Odyssey**





## **LMDS Service Should Be Relocated to 40.5-42.5 GHz Frequency Region**

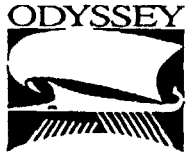
- Frequency Sharing between Odyssey feeder links and LMDS not viable
- Technology exists today to permit LMDS operation at 40 GHz
  - TRW Transmitter Technology

<u>Project</u>	<u>Frequency</u>	<u>Power Capability</u>
Smart-T	42-45 GHz	10-20 Watt SSPA
SCAMP	42-45 GHz	2-3 Watt SSPA
Condor	42-45 GHz	1 Watt High Linearity SSPA
Longbow	35-38 GHz	2-5 Watt SSPA
BCIS	35-38 GHz	0.5-2 Watt SSPA



## **LMDS Service Should Be Relocated to 40.5-42.5 GHz Frequency Region (continued)**

- **Europe planning LMDS at 40 GHz**
- **30 GHz band paired with 20 GHz by international frequency allocation**
- **Next higher Earth-to-space (FSS primary allocation) frequency band is 47.2-50.2 GHz**
  - **Not commercially viable with foreseeable technology**
  - **Additional required rain margin is over 30 dB!!**



## **Summary**

- **Odyssey design predicated on Ka-band feeder link operation**
- **30/20 GHz allocated frequency band must be maintained**
  - **Recommend a 500 MHz bandwidth segment at Ka-band be dedicated to Non-GSO MSS feeder links**
- **Reallocate LMDS service to 40.5-42.5 GHz frequency region**